

# Biogas - CO2

.....

RECIPROCATING GAS COMPRESSORS

MADE & DESIGNED IN ITALY 



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**FORNOVOGAS**  
WE MOVE ENERGY  
MADE IN ITALY 

# Our History in Biomethane

.....

2005

First compressor intalled in a **BIOCNG** plant in **Iceland**

2009

First Oil Free compressor in a **biogas** plant in **Germany**

2010

First compressor in **Sweden** to compress **Raw Biogas**

2018

First compressor in Italy to **liquefy Biomethane**

2019

Became the **exclusive supplier** of the Danish Government of Oil Free compressor, for **biomethane injection** into the **national grid**

TODAY

**LEADER IN THE BIOMTHANE MARKET WITH OVER 350 COMPRESSORS**



AGRICULTURAL  
WASTE



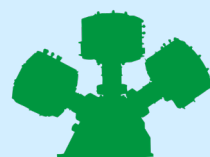
BIODIGESTOR



GAS TREATMENT



UPGRADING



**RAW BIOGAS**  
 $\text{CH}_4 + \text{CO}_2 + \text{H}_2\text{O}$

**NEW CYLINDER !**



**CO2**  
 $\text{CO}_2$



**BIOMETHANE**  
 $\text{CH}_4$



# Performance Analysis

## COMPRESSOR MODEL

1

RAW BIOGAS

DA300

CH<sub>4</sub>+CO<sub>2</sub>+H<sub>2</sub>O

## TYPICAL CAPACITY

INLET PRESSURE	0,15 bar g
OUTLET PRESSURE	15 bar g
FLOW RATE	500 Nm <sup>3</sup> /h
SHAFT POWER	91 kW

## HIGH CAPACITY

0,15 bar g
15 bar g
1379 Nm <sup>3</sup> /h
195 kW

2

CO<sub>2</sub>

DA300

CO<sub>2</sub>

INLET PRESSURE	0 bar g
OUTLET PRESSURE	19 bar g
FLOW RATE	475 Kg/h
SHAFT POWER	39 kW

0 bar g
19 bar g
1000 Kg/h
91 kW

# Why choose Fornovo Gas

## ENERGY EFFICIENCY




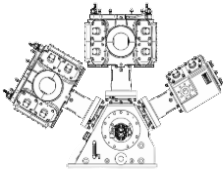










In the long term, Fornovo Gas will deliver significant savings by **reducing** the **energy costs** required for operation.

## OIL - FREE



We ensure the complete **absence of oil traces** in the compressed gas, a **critical requirement** for this application.

# RAW BIOGAS

POWER	MODEL	CYLINDER						APPLICATION								
		Bore (mm)	Acting	Strokes (mm)	MAWP (bar g)	Cooling		Distance Piece Type	Features Options	CH4	BIOGAS/ BIOCH4	N2	CO2	Sour Gas		
315 kW		320	DOUBLE ACTING	100	10			B	Bone dry gas seals							
		240			40											
		150			90											
		90			133											
		90			220											
		200-130	TANDEM		90										B	Ni-plated surface treatment
		100-50			275										B	
		100-50			375										B	

## OIL - FREE



**DISTANCE PIECE TYPE B**  
according to API 618



**NO FILTER REQUIRED**  
downstream of  
the compressor



**NO CONSUMPTION**  
of Crank  
Lubrication Oil



**NO OIL TRACES**  
in the compressed  
gas

1

### LOW PRESSION COMPRESSOR FOR RAW BIOGAS

Fornovogas has developed an innovative compressor designed to compress the gas to the pressure required by upgrading systems, ensuring optimal efficiency for various treatment methods.



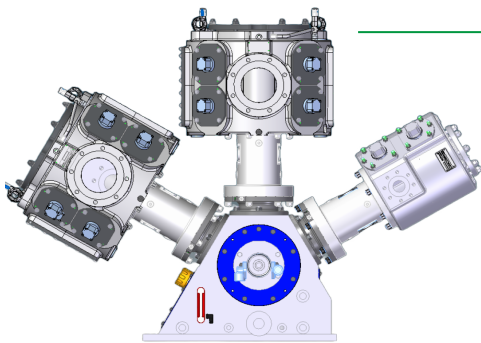
**UP TO 8 BAR**  
For water washing, amine treatment, or PSA technology



**UP TO 16 BAR**  
For membrane treatment

# Cylinders

These specially treated cylinders are designed to efficiently compress **raw biogas** before upgrading, handling **humid gases** at high power (up to 315 kW) and speed (up to 1200 rpm) for optimal performance in the toughest conditions.



**CYLYNDER D13**  
The D13 cylinder is designed to be **sturdy** and **durable**, made from ductile cast iron, ion-nitrided alloy steel, and hardened alloy steel.

## TECHNICAL SPECIFICATIONS

### 2 SUCTION VALVES FOR EACH EFFECT

To operate without plenty of pressure drops.

### SPECIAL SEALS

To operate efficiently at high discharge temperatures.

### WATER COOLING CANALS

Metallically separated from process gases to reduce the risk of leakage.

# Energy Efficiency

## MAIN DATA

SUCTION	0,1 Bar
DISCHARGE	16 Bar
FLOWRATE	1100 Nm3/h

	FORNOVO GAS	OTHER COMPRESSOR TECHNOLOGY
SHAFT POWER	157 kW	180 kW
COMPRESSOR PLANT	170 kW	200 kW

## ESTIMATE MONTHLY SAVING



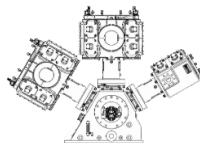







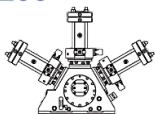










21.000 kWh

# Advantages

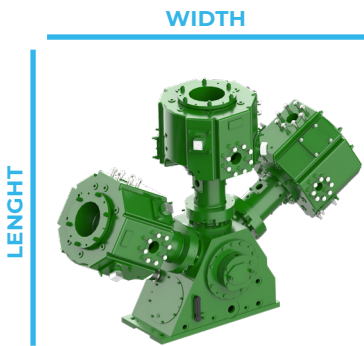




# CO2

POWER	MODEL	CYLINDER						APPLICATION													
		Bore (mm)	Acting	Strokes (mm)	MAWP (bar g)	Cooling			Distance Piece Type	Features Options	CH4	BIOGAS/ BIOCH4	N2	CO2	Sour Gas	Toxic Gas	H2	Syngas			
315 kW	<b>DA300</b> 	320	DOUBLE ACTING	100	10	●			B	Bone dry gas seals											
		240			40	●													B		
		150			90	●															
		90			133	●															
		90			220	●															
		200-130	TANDEM		90	○													B	Ni-plated surface treatment	
		100-50			275	●															B
		100-50			375	●															
55 kW	<b>SA200</b> 	150	SINGLE ACTING	65	50	●			B-C	Bone dry gas seals											
		80			100	●													B-C		
		50-25	TANDEM		306	●														B-C	Ni-plated surface treatment
		40-20			500	●															

## DA300



2 cylinders

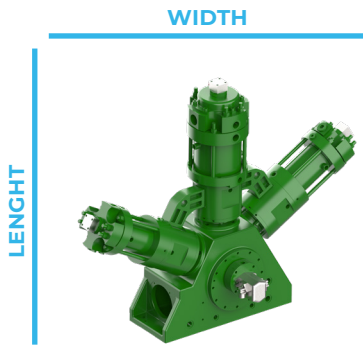
Dimensions: 1153 x 1660mm

3 cylinders

Dimensions: 1395 x 1900mm

\* Measurements can differ based on the selected bore size.

## SA200



Dimensions: 1030x1380mm

\* Measurements can differ based on the selected bore size.

2

### RECIPROCATING CO2 COMPRESSOR

**DA300** and **SA200** compressors are designed for efficient **CO2 treatment**, ideal for applications in **gas recovery**, **liquefaction**, and food and beverage industries.

They provide reliable, **high-performance gas compression** for optimized CO2 management.

I

#### CO2 LIQUEFACTION

CO2 is compressed to 20 bar and liquefied for easier transport to other sites.

II

#### CO2 RECOVERY

CO2 is compressed to a typical pressure of 20 bar, enabling the efficient storage of CO2.

## References



### BIOGAS

**PACKAGE :** SKID

**MODELLO COMPRESSORE :** DA300 Oil-Free

**PRESSIONE D'ENTRATA :** 0,2 bar

**PRESSIONE D'USCITA:** 6 bar

**PAESE DI INSTALLAZIONE :**  SVEZIA



### CO2 LIQUEFACTION

**PACKAGE :** SKID

**COMPRESSOR MODEL :** DA300 Oil-Free

**INLET PRESSURE :** 0,4 bar

**OUTLET PRESSURE :** 15 bar

**INSTALLATION COUNTRY :**  ITALY

## Advantages



ITALIAN  
QUALITY



EASY  
MAINTENANCE



ENERGY  
EFFICIENCY

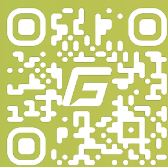


EXCELLENT  
FLEXIBILITY



OIL-FREE  
TECHNOLOGY

# WE MOVE ENERGY



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To Learn More  
About Our  
Compressors



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Mizu Calendar.



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MADE IN ITALY

**Fornovo Gas S.p.A**



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